

217/782-2113

CONSTRUCTION PERMIT

PERMITTEE

Archer Daniels Midland Company - Peoria  
Attn: Jim McQuellon, Environmental Manager  
Foot of Edmund Street  
Peoria, Illinois 61602

Application No.: 05030011

I.D. No.: 143065AJE

Applicant's Designation:

Date Received: March 7, 2005

Subject: Wet Feed Project

Date Issued: DRAFT

Location: Foot of Edmund Street, Peoria

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of modification of the wet feed process, accompanied by improvements to the Sharples centrifuges control system, as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special conditions:

1. Description

Archer Daniels Midland has proposed to install conveying equipment to allow wet feed to be conveyed to an open storage area to enable increased production of wet feed. This change will be accompanied by increased emissions from other ethanol production operations at the source, due to the increased throughput of material. The exception is the feed dryers, since wet feed is not dried.

In conjunction with this project, ADM will reduce emissions of VOM from the Sharples centrifuges, which reduce the water content of feed prior to drying, by diverting emissions into the control system for the dryers, upstream of the existing wet scrubber. This will apply wet scrubbing and oxidizer control to a portion of the Sharples exhausts. The net emissions increase resulting from this modification is less than significant for PSD purposes. (See Attachment 2)

2. List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Control Device
Wet Feed Processing	Wet Feed Handling, Storage and Loadout Operations	None
Sharples Centrifuges (13 units) And Wet Feed Drags (2 units)	Dewatering for Feedhouse (existing)	Scrubber and Regenerative Thermal Oxidizer (RTO)

3. Applicable Provisions and Regulations

- a. The "affected emission units" for the purpose of these unit-specific conditions, are the units, as described and addressed in Conditions 1 and 2 unless otherwise stated.
- b. The affected units are subject to 35 IAC 212.123(a), which provides that no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit except as provided by 35 IAC 212.123(b). [35 IAC 212.123]
- c.
  - i. The affected units are subject to 35 IAC 212.301, which provides that no person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the source. [35 IAC 212.301]
  - ii. The affected units are subject to other requirements of 35 IAC Subpart K, fugitive particulate matter, and shall comply with all applicable sections of this Subpart.
- d. The affected units are subject to 35 IAC 212.321(a), which provides that no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar new process emission units, at a source, exceeds the allowable emission rates specified in 35 IAC 212.321(c). [35 IAC 212.321(a)]

4. Non-Applicability of Regulations of Concern

- a. The Permittee has addressed the applicability and compliance of 40 CFR 52.21, PSD in the application. The limits and other requirements of this permit are intended to ensure that the modifications addressed in this permit do not constitute a major modification as explained in more detail in Attachment 1.
- b. For this purpose, with respect to SO<sub>2</sub> emissions, this permit relies upon the additional steam and electricity generated at the powerhouse for the ethanol production operations, being produced from firing of natural gas.

5. Operational and Production Limits and Work Practices

- a. The emissions from the Sharples centrifuges shall be routed to the existing scrubber and RTO control system for the feed dryers. Note: The addition of the Sharples does not alter the existing permitted limits for these units.

- b. Annual wet feed production shall not exceed 40,000 tons on a twelve month rolling basis.

6. Emission Limitations

- a.
  - i. This permit is issued based on minimal emissions of VOM from the affected wet feed process. For this purpose, VOM emissions shall not exceed 0.25 lbs/hour and 1.1 tons/year.
  - ii. This permit is issued based on negligent emissions other than VOM from the affected wet feed process. For this purpose, emissions of each pollutant shall not exceed 0.1 lbs/hour and 0.44 tons/year.
- b.
  - i. The RTO on the feed dryers shall be operated to achieve at least 98% destruction of VOM.
  - ii. VOM emissions from the feed dryer scrubber, in total, shall not exceed the following limits:

<u>Lb/Hour</u>	<u>Tons/Year</u>
24.2	105.88

- iii. When a second RTO or other control device is installed, so that all emissions of the feed dryers are controlled by combustion, all emissions of the Sharples centrifuges shall be vented through oxidizers.
- c. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

7. Testing Requirements

- a.
  - i. Within 180 days of startup of the affected wet feed process the Permittee shall have the destruction efficiency of the oxidizer system for VOM measured and conduct measurements prior to the control system for total VOM from the sharples system at its expense by an approved testing service, during full load operation of the dryer and other conditions representative of normal operation to verify compliance with the requirements of this permit.
  - ii. Emission measurements shall also be conducted upon written request from the Illinois EPA.
- b.
  - i. The following testing methods and procedures shall be used, as further specified in Section 9.0 of the Control Technology Plan. Refer to 40 CFR 60, Appendix A for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
Volatile Organic Material (VOM)	USEPA Method 18 and 25 or 25A*

\* Outlet testing and control efficiency testing will be based on either Method 25 or Method 25A calibrated to propane, whichever is applicable depending on concentration (i.e., Method 25 shall be used on both the inlet and outlet when the outlet total hydrocarbon concentration is > 50 ppm as carbon and Method 25A shall be used on both the inlet and outlet when the outlet THC concentration is < 50 ppm as carbon).

- c. The Permittee shall submit a written test plan to the Illinois EPA for review and approval for the initial testing and if a significant change in the procedures for this testing is planned from the procedures followed in the previous test. This plan shall be submitted at least 60 days prior to the actual date of testing and include the following information as a minimum:
  - i. A description of the planned test procedures.
  - ii. The person(s) who will be performing sampling and analysis and their experience with similar tests.
  - iii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions.
  - iv. The specific points at which samples will be taken for a pollutant.
- d. The Permittee shall notify the Illinois EPA prior to conducting these measurements to enable the Illinois EPA to observe testing. Notification for the expected date of testing shall be submitted a minimum of 30 days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of the test. The Illinois EPA may accept shorter advance notice if it does not interfere with the Illinois EPA's ability to observe testing.
- e. Copies of the Final Report(s) for these tests shall be submitted to the Illinois EPA within 30 days after the test results are compiled and finalized. These reports shall include as a minimum:

- i. General information, i.e., date of test, names of testing personnel, and names of Illinois EPA observers.
- ii. A summary of results, e.g. VOM emissions, lb/hour.
- iii. Detailed description of operating conditions of the sharples and drier systems, including:
  - A. Process information, e.g. feed composition, operating rate, and moisture content.
  - B. Control system operating parameters during testing.
  - C. Solids content/ph of various scrubbant streams.
  - D. Temperature drop across the waste heat evaporator.
- iv. Data and calculations.
- v. Conclusions.

8. Instrumentation Requirements

- a. The Permittee shall install, operate and maintain instrumentation to measure the flow rate of the exhaust to the atmosphere from the feed dryer scrubber (i.e., the gas flow that does not go to the RTO).

9. Recordkeeping Requirements

The Permittee shall maintain records of the following items:

- a. Wet feed production (tons/month and tons/year).
- b. Emissions of: NO<sub>x</sub>, CO, SO<sub>2</sub>, PM/PM<sub>10</sub> and VOM in tons/month and tons/year.
- c. The Permittee shall maintain records of the following operating parameters for the control units. Those parameters for which there is continuous monitoring shall be manually recorded at least every two hours, if automatic measurement and recording device(s) are not in service for more than two hours. Other parameters shall be recorded at least every two hours.
  - i. For the burner/thermal oxidizer:
    - A. Fuel Supply (volume as measured by flow meter)
    - B. Furnace temperature.

- d. The Permittee shall keep records of all emission measurements conducted for the affected sharples units including:
    - i. Records of emission measurements conducted pursuant to Condition 7.
    - ii. Records of other measurements of emissions conducted as part of the evaluation of affected sharples units and their control system.
  - e. The Permittee shall maintain records for any period during which the affected sharples units were in operation when their air pollution control equipment was not in operation or was not operating properly.
    - i. These records shall include each period of time when an operating parameter of a control system, as recorded above, deviated outside the level set as good air pollution control practice (date, duration and description of the incident).
    - ii. These records shall include the cause for pollution control equipment not operating properly or being out of normal service, for incidents when control equipment failed to operate properly and shall identify the corrective actions that were taken, the repairs that were made, and the steps that were taken to prevent any such reoccurrence.
    - iii. These records shall also identify any such periods during which an emission unit exceeded the requirements of this permit, including applicable emission limits. This record shall include the cause for noncompliance, if known, and the corrective action(s) and preventive measures taken to prevent any such reoccurrence if any.
10. Reporting Requirements
- a. The Permittee shall notify the Illinois EPA of noncompliance of an affected emission unit with the requirements of this permit in accordance with the applicable provisions of the CAAPP permit for deviation notification. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.
  - b. The Permittee shall promptly notify the Illinois EPA of any changes in the VOM emission determination methodology from the plant, as presented in the application.
11. The Permittee is allowed to operate the affected units, i.e., the modified wet feed processing and Sharples centrifuges with additional control, subject to the above limitations on emissions under this

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construction permit until final action is taken to incorporate these  
emission units in a modification to or renewal of their CAAPP permit.

If you have any questions on this, please call Kevin Smith at 217/782-2113.

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

DES:KJL:psj

cc: Region 2

# Attachment 1

## Summary of Project Emissions Increases

Emissions Unit/Process Area	Emissions Change (tpy)					VOC
	PM	PM <sub>10</sub>	NO <sub>x</sub>	SO <sub>2</sub>	CO	
Alcohol Processing	0.00	0.00	0.00	0.00	0.00	75.27 <sup>1</sup>
Alcohol Tanks	0.00	0.00	0.00	0.00	0.00	5.10
Beverage Loadout	0.00	0.00	0.00	0.00	0.00	2.74
Fuel Loadout	0.00	0.00	0.00	0.00	0.00	2.69
Elevator and Mill	1.52	0.85	0.00	0.00	0.00	0.32
Feedhouse	0.00	0.00	0.00	0.00	0.00	10.51 <sup>1</sup>
Powerhouse	1.34	1.34	17.75	0.11	14.80	0.97
Roads	2.34	0.51	0.00	0.00	0.00	0.00
Wet Feed Operations	0.02	0.01	0.00	0.00	0.00	0.85
Wet Feed Project - Total	5.20	2.70	17.80	0.10	14.80	98.45
PSD Threshold	15.00	15.00	40.00	40.00	100.00	40.00
Project Significant?	No	No	No	No	No	Yes

Note: <sup>1</sup> Does not reflect requirements of the Consent Decree, which will reduce these Emissions in the future.



Attachment 2

PSD Applicability (VOM)

**Table I - Future Potential Emissions with Modified Wet Feed Processing**  
(Tons/Year)

VOM
98.4

**Table II - Other Contemporaneous Increases** (Tons/Year)

Boiler #3	9.27
B-8 Column Conversion	5.60
	14.87

**Table III - Contemporaneous VOM Emissions Decrease For Sharples Centrifuges**  
(Tons/Year)

Past Actual	218.43	Based on Average from 2002-03
Future Potential	105.88	<b>With Feed Dryer Scrubber and Oxidizer</b>
Net Emissions Change	-112.55	

**Table IV - Net Emissions Change From These Projects** (Tons/Year)

Table	VOM
I	98.4
II	14.87
III	-112.55
Total	0.77

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